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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/355,623	10/05/1999	OLLI PIIRAINEN	PM262375	6720

909 7590 03/07/2007  
PILLSBURY WINTHROP SHAW PITTMAN, LLP  
P.O. BOX 10500  
MCLEAN, VA 22102

EXAMINER
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TRAN, TUAN A

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

09/355,623

**Applicant(s)**

PIIRAINEN, OLLI

**Examiner**

Tuan A. Tran

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-11, 13-15, 16-27 and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kay et al. (5,357,513).

Regarding claim 1, Kay discloses a transmission method and apparatus used in a radio system that comprises at least one base station B (See figs. 1 and 37) and a number of subscriber terminals U at least two of which transmit access bursts to one and the same base station, the access burst activating between a subscriber terminal and a base station a connection that is established by a signal that is of a certain frequency and is sent in timeslots, characterized in that: a first subscriber terminal is commanded (See figs. 29-30 and col. 11 line 28 to col. 12 line 32, col. 18 lines 1-16) to send to the at least one base station a first signal (RR) using a determined timeslot 1 and a determined carrier frequency 7 (See fig. 16 and col. 13 lines 30-51); a second subscriber terminal is commanded (See figs. 29-30 and col. 11 line 28 to col. 12 line 32, col. 18 lines 1-16) to send to the at least one base station a second signal (RR) using the determined timeslot 1 and carrier frequency 7 simultaneously employed by the first subscriber terminal (See fig. 16 and col. 13 lines 30-51); and the second subscriber

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terminal is commanded to adjust a transmission moment of the second signal (RR) within the determined timeslot 7 (in accordance to the assigned sub-slot) (See col. 11 lines 36-54) so that the at least one base station receives the transmitted first and second signals at different moments within the same timeslot 7 (See fig. 16). However, Kay does not mention that the base station comprises a plurality of RF heads and access bursts are received in the base station using different RF heads. Since base station with multiple RF heads is widely known in the art; therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ multiple RF heads to the base station of the radio system as disclosed by Kay for the advantage of enhancing signal quality as well as extending coverage of the base station to areas (e.g. pico-cellular environment) where signals are degraded due to terrain or obstacles such mountains, trees, buildings or walls. Further, due to the mobility of subscriber terminals U (See fig. 1), transmissions including access bursts being received in the base station via different RF heads.

Regarding claim 2, Kay further discloses the transmission moment is adjusted before an actual connection is established (See col. 13 lines 59-60).

Regarding claims 3-4, Kay further discloses the command is sent to delay or advance the transmission moment of the signal (See figs 29-30 and col. 18 lines 3-10).

Regarding claims 5-6, Kay further discloses the command is sent to advance or delay the transmission moment at most an 11-bit period (See fig. 14 and col. 12 line 65 to col. 13 line 3).

Regarding claim 7, Kay further discloses the transmission moment of the signal is adjusted by at most the tail bits at the beginning of the burst and the guard period at the end of the burst (See fig. 14).

Regarding claim 8, Kay further discloses the impulse responses are formed from the signals received by the base station being defined to have a length of a minimum of substantially 3 bits (See fig. 18 and col. 14 lines 45-56).

Regarding claim 9, Kay further discloses at least two signals of the same frequency are separated from each other, the signals have been received by the base station from one and the same timeslot (See figs. 14-16).

Regarding claim 10, Kay further discloses the signals are separated by means of training sequences of signals received at different moments (See fig. 14 and col. 12 line 43 to col. 13 line 3).

Regarding claim 11, Kay further discloses the signals received by the base station are correlated and on the basis of correlation, the signal with the best quality and for example the highest energy is selected, and the signal is then used as a connection-establishing signal (See col. 15 lines 8-53).

Regarding claim 13, Kay further discloses the sent command is to change the signal transmission frequency, if the signal transmitted by the subscriber terminal interferes with a signal transmitted by another subscriber terminal (See col. 17 lines 53-68).

Regarding claim 14, Kay further discloses the frequencies used in different signals are predetermined (See figs. 15-17).

Regarding claim 15, Kay further discloses the signals are transmitted by the Time Division Multiple Access (TDMA) method (See figs. 15-17 and col. 3 lines 32-35).

Regarding claim 16, Kay discloses as cited in claim 1. Kay further discloses that the method is suited for cellular communication system utilized TDMA (See fig. 15-17 and col. 3 lines 32-35). However, Kay does not mention that the method is particularly suited for the radio system, for example, in offices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a method as disclosed by Kay in the radio system in offices for the advantage of extending the application of the method into various environments.

Claims 17-27 and 29-34 are rejected for the same reasons as set forth in claim 1-11 and 13-16, as apparatus.

2. Claims 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kay et al. (5,357,513) in view of Bjork et al. (6,084,862).

Regarding claim 12, Kay discloses as cited in claim 1. However, Kay does not explicitly mention that the signals received by the base station are correlated by means of a training sequence, the signal formed on the basic of the correlation are placed in windows, and the summed energies of the impulse responses of the signals placed in the window are compared. Bjork discloses signals received by the base station are correlated by means of a training sequence, the signal formed on the basic of the correlation are placed in windows, and the summed energies of the impulse responses of the signals placed in the window are compared (See figs. 2, 8 and col. 3 lines 30-50,

col. 5 line 48 to col. 6 line 13, col. 6 lines 45-56, col. 9 line 18 to col. 12 line 15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Bjork in the method and apparatus as disclosed by Kay for the advantage of making accurate measurements of time dispersion.

Claim 28 is rejected for the same reasons as set forth in claim 12, as apparatus.

### ***Response to Arguments***

Applicant's arguments filed 12/05/2006 have been fully considered but they are not persuasive.

The Applicant argued that the cited prior art fails to teach or suggest the claimed limitation "the influence of interference is restricted by routing signals via different RF heads" (See Remark, page 1 third paragraph). The claims, themselves, do not recite the claimed limitation argued by the Applicant.

The Applicant argued that Kay fails to teach or suggest the claimed invention wherein transmissions are received in the base station using different RF heads (See Remark, page 1 last paragraph). As recognized in the above rejections, Kay does not mention that the base station comprises a plurality of RF heads and transmissions are received in the base station using different RF heads. However, since base station with multiple RF heads is widely known in the art (the Examiner would like to present GB 2308041 published on November, 2007 as evidence); therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ

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multiple RF heads to the base station of the radio system as disclosed by Kay for the advantage of enhancing signal quality as well as extending coverage of the base station to areas (e.g. pico-cellular environment) where signals are degraded due to terrain or obstacles such mountains, trees, buildings or walls, wherein due to the mobility of subscriber terminals U within the coverage area of the base station (See fig. 1), transmissions being received in the base station via different RF heads.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Tran whose telephone number is (571) 272-7858. The examiner can normally be reached on Mon-Fri, 10:00AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone



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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Tuan Tran

  
Matthew D. Anderson  
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